Patent Claims

1. An electrochemical transducer array, having the following features:

- at least one flexible, planar metal substrate (1, 10_i) is provided, on which at least one flexible isolator (2, 20_i) is arranged with a permanent connection between the metal surface and the isolator surface,
- the metal substrate (1, 10_i) is self-supporting and is structured in such a manner that metal areas which are electrically isolated from one another are produced, and
- the isolator (2, 20_i) which is located on the metal substrate (1, 10_i) is structured in such a manner that open metal surfaces (12_i) remain as sensor surfaces in the isolator surface (2, 20_i),
- the structured metal areas (1, 10_i) can be made contact with from the side (11_i) facing away from or opposite the sensor surface (12_i).

2. The transducer array as claimed in claim 1, characterized in that the isolator layer (2) forms cavities (3_i) over the sensor surfaces (11_i).

3. The transducer array as claimed in claim 1 or claim 2, characterized in that electrical contacts (4a, b, c) are provided, with the contacts (4a, b, c) and the sensor surfaces (12_i) being located on opposite sides of the metal/isolator composite (1, 2).

4. The transducer array as claimed in claim 3, characterized in that the contacts (4a, b, c) are fitted to the metal areas (11_i), which are exposed on both sides, directly opposite the sensor surfaces.

5. The transducer array as claimed in claim 3, characterized in that the contacts (4a, b, c) are fitted to the metal areas (11_i),

which are exposed on one side, such that they are laterally offset with respect to the sensor surfaces.

6. The transducer array as claimed in one of the preceding claims, characterized in that a single sensor surface (101_i) contains at least two electrically isolated metal areas.

7. The transducer array as claimed in claim 6, characterized in that gaps which form additional isolator areas (40_i) are formed between the two metal areas (10_i) on the contact side.

8. The transducer array as claimed in claim 7, characterized in that the additional isolator areas (40_i) leave metal areas (10_i) free for electrical contact to be made.

9. The transducer array as claimed in one of the preceding claims, characterized in that the sensor surfaces (12_i) are composed of a noble metal or a noble metal alloy.

10. The transducer array as claimed in one of the preceding claims, characterized in that the sensor surfaces (12_i) are coated with a noble metal or a noble metal alloy.

11. The transducer array as claimed in one of the preceding claims, characterized in that electrodes are provided on a graphite base, for example in the form of a carbon paste electrode.

12. The transducer array as claimed in one of the preceding claims, characterized in that at least one of the sensor surfaces (12_i) is coated with silver/silver chloride.

13. The transducer array as claimed in one of the preceding claims, characterized in that an electrolyte is provided and wets a plurality of sensor surfaces (12_i).

14. The transducer array as claimed in one of the preceding claims, characterized in that at least two sensor surfaces (12_i, 12_{i+1}) can have voltage applied to them.

15. The transducer array as claimed in one of the preceding claims, characterized in that at least two sensor surfaces (12_i, 12_{i+1}) and one sensor surface (12_k) which is coated with silver chloride can be connected as a three-electrode arrangement to a potentiostat (5), with the sensor surface (12_k) which is coated with silver chloride being used as a reference electrode.

16. The transducer array as claimed in one of the preceding claims, characterized in that a separate reference electrode (15) is provided, and is immersed in an electrolyte.

17. The transducer array as claimed in claim 16, characterized in that at least two sensor surfaces (12_i, 12_{i+1}) and the separate reference electrode (15) can be connected to a potentiostat (5).

18. The transducer array as claimed in claim 16, characterized in that the electrically isolated metal areas (10_i, 10_{i+1}) with sensor surfaces (12_i, 12_{i+1}) can have voltage applied to them.

19. The transducer array as claimed in claim 16, characterized in that the electrically isolated metal areas (10_i) of one sensor surface (12_i) and the reference electrode (15) can be connected as a three-electrode arrangement to a potentiostat (5).

20. The transducer array as claimed in one of the preceding claims, characterized in that the cavities (3_i) contain biochemical identification layers.

21. The transducer array as claimed in one of the preceding claims, characterized in that the electrolyte areas in individual cavities (3_i) are isolated from one another.

22. The transducer array as claimed in claim 21, characterized in that a separate metal surface closes the cavities (3_i).

23. The transducer array as claimed in one of the preceding claims, characterized in that the sensor surfaces (12_i) can have a voltage applied to them with respect to the additional metal surface.

24. The transducer array as claimed in one of the preceding claims, characterized in that one additional sensor surface is provided per cavity (3_i) and is used as a reference electrode.

25. The transducer array as claimed in one of the preceding claims, characterized in that the metal surface which closes the cavities (3_i) is coated with silver chloride and is used as a reference electrode.

26. The use of a transducer array as claimed in claim 1 or one of the further claims as an ion-selective sensor.

27. The use of a transducer array as claimed in claim 1 or one of the further claims as a bio-sensor.

28. The use of the transducer array as claimed in claim 27 or claim 28, with the sensor surfaces having high catalytic activity.